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NAVFAC **IGS-09680 (February 2003)**

Supercedes IGS-09680 (05/02)

Preparing Activity: LANTNAVFACENGCOM **Based on UFGS-09680**

ITALIAN GUIDE SPECIFICATIONS

Use for ITALIAN projects only

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SECTION 09680

CARPET

02/03

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NOTE: This guide specification is issued by the Atlantic Division, Naval Facilities Engineering Command for regional use in Italy.

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NOTE: This guide specification covers the requirements for and the installation of carpet and carpet cushions. Consider carpet tile in open office areas when budget permits. See Section 09685.

Comments and suggestion on this specification are welcome and should be directed to the technical proponent of the specification. A listing of the technical proponents, including their organization designation and telephone number, is on the Internet.

Use of electronic communication is encouraged.

Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.

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NOTE: On the drawings, show:

1. Location of carpet.

2. Pattern and color.

3. Special features: Ducts, trench headers, etc.

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PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

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NOTE: An ISO Standard is published by the International Standard Organization which is a worldwide federation of national standards bodies from 120 countries. ISO standards cover all fields except electric and electronic engineering standards. ISO's are available in both English and French language.

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ISO/TR 5090	(1977) Textiles - Methods for the removal of non-fibrous matter prior to quantitative analysis of fiber mixtures
ISO 8543	(1998) Textile floor coverings - Methods for determination of mass
ISO 11857	(1999) Textile floor coverings - Determination of resistance to delamination

ITALIAN LAWS AND NORMS (D.M.)(D.P.R.)(LAW)(CIRC.)

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NOTE: Italian laws and normatives are the legislative regulations and decrees issued by the Italian government in the form of laws, norms, decrees, circulars, and letters. These Laws and Decrees concur together with Norms and Standards in forming the governing directives for construction.

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D.P.R. 164	7/01/1956, Norms for the prevention of work related accidents
D.M. 26/06/1984	Fire reaction classification and homologation of material for fire prevention purposes
D.Lgs 494	14/08/1996, Safety on health requirements in temporary or mobile work sites
D.M. 03/09/2001	Modification and implementation of Decree 26 June 1984 concerning fire reaction classification and homologation of materials for fire prevention purposes

D.L. 25	(02/02/02) Enforcement of 98/24/CE directions for works health and safety protection against chemical agents hazards during works

ITALIAN NATIONAL ASSOCIATION FOR UNIFICATION OF STANDARDS (UNI)

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NOTE: A UNI Norm is a technical normative recognized as Italian Law, submitted by a private organization "Ente Nazionale Italiano di Unificazione" for Italy and is available only in the Italian language. It is the National Standard.

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UNI 8014-13	(1987) Machine-made textile floor coverings. Test methods. Determination of number of tufts and/or loops per unit length and per unit area
UNI 8014-14	(1987) Machine-made textile floor coverings. Test methods. Determination of tufts withdrawal force
UNI 8014-16	(1989) Machine-made textile floor coverings. Test methods. Determination of the horizontal and vertical resistance
UNI 8457	(1987) Combustible materials which can be hit by flame on one surface. Reaction to fire by applying a small flame
UNI 8457/A1	(1996) Combustible materials which can be hit by flame on one surface. Reaction to fire by applying a small flame
UNI 9174	(1987) Reaction to fire of material can be hit by flame with radiant heating
UNI 9174/A1	(1996) Reaction to fire of material can be hit by flame with radiant heating

ITALIAN/EUROPEAN HARMONIZATION STANDARDS (UNI EN)(UNI ENV)(CEI EN) (UNI EN ISO)(UNI ISO)

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NOTE: A UNI EN, UNI ENV, CEI EN, UNI EN ISO or UNI ISO is a European Standard with a coincident Italian National Standard or International Standard. The two standards are identical, with most (but not all) EN's available in the English language and the UNI available only in the Italian language.

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UNI EN 20105-A02	(1996) Textiles - Tests for color fastness - Grey scale for assessing change in color
UNI EN ISO 105-B02	(2001) Textiles - Tests for color fastness - Color fastness to artificial light: Xenon arc fading lamp test
UNI EN ISO 105-E01	(1998) Textiles - Tests for color fastness - Color fastness to water
UNI EN ISO 105-G03	(1999) Textiles - Tests for color fastness - Part G03: Color fastness to ozone in the atmosphere
UNI EN 1815	(1999) Resilient and textile floor coverings - Assessment of static electrical propensity
UNI EN ISO 2061	(1998) Textiles - Determination of twist in yarns - Direct counting method

1.2 SUBMITTALS

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NOTE:
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Submit the following in accordance with Section 01330, "Submittal Procedures."

SD-02 Shop Drawings

Carpet installation

On drawings, show:

Area to be carpeted

Location of seams

Moldings and edge strips and locations

Details of special treatments such as ducts, trench headers, and location thereof.

SD-04 Samples

Carpet; G

[Attached cushion; G]

Molding

Submit carpet samples at least 300 by 450 mm of each carpet indicated. Submit carpet with attached cushion as specified.

SD-06 Test Reports

[Flammability; G]

Static control; G

The reports shall be dated within two years of submittal for approval.

SD-07 Certificates

Carpet

Submit certificate attesting that the carpet meets the requirements of the paragraph entitled "Flammability".

Installation experience

SD-08 Manufacturer's Instructions

Carpet installation

Submit the carpet manufacturer's printed installation instructions. Include procedures for installation covering preparation of the substrate, seaming techniques, and recommended adhesives and tapes where applicable.

SD-10 Operation and Maintenance Data

Carpet, Data Package 1; G

Submit data package in accordance with Section 01781, "Operation and Maintenance Data." Submit copies of the carpet manufacturer's maintenance manual.

1.3 INSTALLATION EXPERIENCE

1.3.1 Contractor Experience

All work shall be done by installation firms specializing in commercial carpet installation. The firm shall have a minimum of 5 years experience in this type of work and will provide qualified, experienced installers to perform work. Include a list of previous jobs giving name, location, monetary (dollar) value, and date.

1.4 DELIVERY AND STORAGE

Deliver carpet to the site in manufacturer's original wrappings and packages clearly labeled with the manufacturer's name, brand name, and related information. Attach register number to each roll or stencil on the bale. Store in a safe, dry, clean, and well ventilated area. Store rolls

flat, not standing on end and do not stack anything on top of carpet rolls. Do not open containers until needed for installation unless verifying inspection is required. If carpet is to be prefabricated at a carpet workroom, keep receiving records.

1.5 SAFETY

Carpet adhesives may contain toxic volatile components. Follow ventilation, personal protection, and other safety precautions as recommended by the manufacturer of the adhesive, and by D.L. 25, D.P.R. 164, and D.Lgs 494 and latest updated revisions.

1.5.1 General Requirements

If carpet is used as a floor, then it shall be securely attached; have a firm cushion, pad, or backing, or no cushion or pad; and have a level loop, textured loop, level cut pile, or level cut/uncut pile texture. The maximum thickness shall be 13 mm. Exposed edges of carpet shall be fastened to floor surfaces and have trim along the entire length of the exposed edge.

PART 2 PRODUCTS

2.1 SOURCE MANUFACTURERS

2.1.1 Carpet

The following manufacturers provide carpet types that generally comply with these specifications:

LOUIS DE POORTERE ITALIA
Via Lazzaroni
21047-Saronno
Tel: 02-964181
Fax: 02-96418201
www.louisdepoortere.it

LIUNI
Via G. Stephenson 43
20157 Milano
Tel: 02-30731
Fax: 02-3073221
www.liuni.it

INTERFACE ITALIA S.r.l.
via Castel Morrone 24
20129 - Milano
Tel: 02-277-1101
Fax: 02-294-0157
www.interfaceeurope.com/it

2.1.2 Molding

The following manufacturers provide molding materials that generally comply

with these specifications:

EDILIZIA SERVIZI CPR
Via Peri Jacopo n. 71
41100-Modena
Tel: 059-280121
Fax: 059-250849
www.cprgiunti.com

PROFILIITALIA
Via Brescia, 41
36040 Torri di Quartesolo (VI)
Tel: 0444-268300
Fax: 0444-268310
www.folotec.it

JOINT
Via del Vivaio 15
40132 - Bologna
Tel: 051-400086
Fax: 051-400398
e-mail: info@joint.it

2.1.3 Adhesive

The following manufacturers provide carpet adhesive materials that generally comply with these specifications:

ADESIV s.n.c.
Via S. Patrizio 33 Loc. S. Lazzaro
Fassano del Grappa (VI)
Tel: 0424-566406
Fax: 0424-566473
www.adexiv.it

MAPEI S.p.A.
Via Cafiero, 22
20158 Milano
Tel: 02-376731
Fax: 02-37673214
www.mapei.it
e-mail: mapei@mapei.it

SIKA
Via E. De Amicisi 44
20123 - Milano
Tel: 02-721261
Fax: 02-8055649
www.sika.it
e-mail: info@sika.it

2.2 PHYSICAL REQUIREMENTS

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NOTE: For each different type of carpet specified:

Use Table I at end of text to determine carpet wear classification.

Use Table II at end of text to determine minimum requirement for carpet construction necessary to meet the wear classification defined from Table I for the pile yarn type and pile fiber chosen. Insert surface texture, pile yarn type, pile fiber, finished pile yarn weight, pile density, width, gage, dye method, and attached cushion requirement as necessary for each carpet type. Pattern and color for each carpet shall be indicated in the drawings in the finish/color schedule. Designate each carpet with a letter or number symbol to key locations indicated in the finish/color schedule.

Specify carpet width and attached cushion requirement, if applicable. State carpet width as minimum permissible, bearing in mind that wider carpet minimizes number of seams. "Standard" width for most commercial carpet is.

Some cushion-backed carpet is available in width of 1800 mm.

Edit entire Part 2 to delete items that do not apply.

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Provide carpet from manufacturer's standard stock. Carpet shall be first quality; and free of visual blemishes, streaks, poorly dyed areas, and other physical and manufacturing defects. Use nontoxic carpet materials and treatments, reasonably nonallergenic, and free of other recognized health hazards. Conform to the following:

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NOTE: Specifications listed below should reflect the actual carpet selected for the facility/area and that which is referenced in the finish schedule/color legend. The physical requirements paragraph should not be filled out listing the minimum requirements outlined in Table II. Table II should be used only as a guideline to determine the minimum quality permissible for a given facility/area.

NOTE: Gage applies to tufted carpet. Gage relates to the number of ends of surface yarn when counted across the carpet width: e.g. 1/8 gage equals 8 ends per 25 mm.

NOTE: When specifying more than one type of carpet in a contiguous space (i.e., cut pile border with

loop pile field) include pile thickness as a physical characteristic to ensure a uniform level surface.

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a. Surface Texture: [Tufted] [Woven] [Bonded] [_____].

b. Pile Yarn Type: [Level-loop] [Multilevel loop] [Cut and loop] [Frieze] [Cut pile] [Random Shear] [Level Tip-Shear] [_____].

c. Pile Fiber: Commercial [branded [6] or [6.6] Nylon continuous filament] [branded [6] or [6.6] Nylon staple][Wool] [polyethylene terephthalate (PET) 25-100 percent recycled fiber] [_____].

d. Finished Pile Yarn Weight: Minimum [_____] kg/m2. This does not include weight of backings. Weight shall be determined in accordance with ISO 8543.

e. Pile density: [_____] kg/m3 minimum.

f. Width: [400 cm] [200 cm] minimum usable carpet.

g. Gage: [_____]per mm minimum in accordance with UNI 8014-13.

h. Dye Method: [Solution Dyed] [Stocked dyed] [Yarn (or Skein) dyed] [Piece dyed] [Spaced dyed] [Continuous dyed].

i. Pattern and color: As indicated on drawings.

[j. Attached cushion: Conform to paragraph entitled "Attached Cushion".]

2.2.1 Surface Texture

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NOTE: The paragraphs below define the surface texture to be specified and regulate physical aspects of the carpet pile surface to ensure proper wear and appearance retention. Any surface texture may be printed or dyed to provide a pattern. Delete bracketed paragraphs that do not apply.

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[2.2.1.1 Loop Pile

[a. Plain or Textured Surface: Provide either single level uncut pile or textured uncut pile to create an overall nondirectional surface. Maximum differential between finished pile heights (high and low pile loops of textured pile shall be 3.175 mm.]

[b. Patterned Surface: Provide two or more levels of uncut pile as required to provide the specified pattern. Maximum differential between finished pile height (high and low pile loops) shall be 3.175 mm.]

][2.2.1.2 Cut Pile

Level cut pile. Includes a variety of textures ranging from smooth-surfaced velvets to saxony-type textures that depend on tuft definition to provide the required character and effect.

][2.2.1.3 Cut and Loop Pile

Single-level or textured pile of cut and uncut pile yarns with maximum differential between finished pile heights (high and low pile) of 1.6 mm. Cut pile surface shall not exceed one half of the total surface.

][2.2.1.4 Frieze (Hard Twist)

Cut pile made from plied, unbalanced, tightly twisted, heat-set yarns to provide a textured surface with clearly defined tufts.

][2.2.1.5 Tip-Shear

Tip-Shear - Tufted multi-level loop carpet in which the significantly longer loops are lightly sheared. The cut fiber tips showing on the surface against the loop background give darker, or shaded, cut areas and surface interest to the carpet. Yarn used in tufting the tip-shear shall be heat set.

]2.2.2 Pile Yarn

Do not use undrawn fiber in spun yarn. Provide spun yarn at least two ply for loop pile carpets with sufficient twist to develop adequate yarn characteristics to ensure high wearability and to minimize pilling and fuzzing of the finished carpet. Provide plied yarns with a twist in the opposite direction to the singles. Use yarn setting method sufficient to assure permanent texture retention under normal use conditions, cleaning, and shampooing. Use autoclave or continuous heat-set on yarns for friezes and for plush-cut pile constructions requiring tuft definition. Yarns for velvet surface plush-cut pile fabrics not requiring tuft definition may be crimp-set. Fiber denier and staple lengths may be subject to normal manufacturing tolerances with the following limitations:

a. Acceptable variance in staple length plus or minus 10 percent.

b. Acceptable denier variance, plus or minus 5 percent in individual filament denier and plus or minus 3 percent in average denier.

2.2.2.1 Twist and Twist Multiplier

For loop-pile carpet, UNI EN ISO 2061. The minimum twist multiplier for singles is 2.75; minimum twist for a 2-ply yarn is 80 percent of the twist in the singles yarns; for a 3-ply yarn, 70 percent; and for a 4-ply yarn, 60 percent.

[2.2.2.2 Wool

Thoroughly scoured carpet-type fiber containing a minimum of 95 percent wool, based on the original dry weight of the specimen.

][2.2.2.3 Staple Nylon

Carpet type fiber with average fiber size of 15 denier or coarser and minimum staple length of 150 mm.

][2.2.2.4 Continuous Hollow Filament Nylon

Branded, continuous high bulk or textured carpet type fiber with average filament size of 15 denier or coarser modified to provide increased translucence or opacity for soil hiding.

]2.2.2.5 Polyethyelene Terephthalate (PET)

Carpet type fiber extruded and spun from at least 25 percent recycled polyethyelene terephthalate (PET) principally derived from post consumer soft drink bottles.

2.3 EXTRACTABLE MATTER IN FINISHED YARN

Not more than 2 percent extracted material when tested in accordance with ISO/TR 5090.

2.4 BACKING SYSTEMS

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NOTE: Delete paragraphs below that are not required. A secondary backing is required for tufted carpet except when a unitary backing or an attached cushion is specified.
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2.4.1 Primary Backing

Those customarily used and accepted by the trade for each type of carpet.

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NOTE: A unitary backing is a latex backcoating which increases the tuft bind performance properties without the addition of a secondary backing.
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2.4.2 Unitary Backing

Those customarily used and accepted by the trade for each type of carpet.

[2.4.3 Secondary Backing

Those customarily used and accepted by the trade for each type of carpet.

][2.4.4 Attached Cushion

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NOTE: Attached cushion is a cushion material permanently bonded to the back of the carpet by the manufacturer. The cushion material is usually of rubber, polyvinyl chloride and polyurethane and provides for additional dimensional stability and thickness. Following are the attached cushion typed recommended for Navy Facilities. The requirements indicated for each typed are the minimum standards; however, if the actual product selected for the project exceeds the minimum, then the minimums should be edited to indicate the new requirement in no case though, may the minimums be edited to reflect a lesser requirement than already determined for the standard.

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[a. [Polyvinyl Chloride (PVC)] Ethylene Vinyl Acetate (EVA) with a minimum weight of [1.04] [_____] kg/m2, minimum thickness of [3.80] [_____] mm, minimum foam density of [9.80] [_____] kg/m3.]

[b. Chemically frothed urethane with a minimum weight of [0.66] [_____] kg/m2 and minimum foam density of [7.2] [_____] kg/m3.]

[c. Mechanically frothed urethane with a minimum weight of [0.820] [_____] kg/m2, minimum foam density of [9.2] [_____] kg/m3, minimum thickness of [2.55] [_____] mm.]

]2.5 PERFORMANCE REQUIREMENTS

2.5.1 Shrinkage

Maximum shrinkage of length and width shall be 3 percent.

2.5.2 Colorfastness to Light

Test in accordance with UNI EN ISO 105-B02. Use the Xenon arc as the light source. Test all colors specified.

2.5.3 Dry and Wet Crocking, Colorfastness to Water and to Ozone

UNI EN 20105-A02, UNI EN ISO 105-E01, and UNI EN ISO 105-G03.

2.5.4 Tuft Bind

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NOTE: For most facilities, the 4.50 kilogram tuft bind for loop pile and 2.30 kilogram for cut pile are adequate. For child care centers, youth centers, and dependent's schools, specify 4.5 kilogram tuft bind for loop pile because of the increased potential for loop pull in the course of children's activities. Although increased wear by itself is not the primary factor in damage due to lack of tuft

bind, consider 4.5 kilogram tuft bind for any severe wear application where loop pile might be vulnerable to snagging.

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UNI 8014-14. Provide minimum tuft bind in average force of [44.5 N] [ ] for loop pile and [22.25 N] [ ] for cut pile.

2.5.5 Flammability

All carpet shall be classified Class 1 fire resistance when tested in accordance with UNI 8457, UNI 8457/A1, UNI 9174, and UNI 9174/A1, as specified in D.M. 26/06/1984 and D.M. 03/09/2001.

2.5.6 Static Control

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NOTE: A maximum of 3.5 kV of static protection is satisfactory for most installations. Specify the electrical equipment manufacturer's recommendation for static protection for critical areas such as computer rooms, where excessive static build-up may create functional or safety hazards. In the absence of manufacturer's recommendation, use the 2.0 kV requirement.

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UNI EN 1815. Incorporate a permanent static control system to control static build-up to less than [3.5] [2.0] [_____] kV. Test at [20] [___] percent relative humidity at [21 degrees C] [___ degrees C].

2.5.7 Electrical Resistance

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NOTE: Include electrical resistance requirements for all computer room installations, and for other installations where recommended by the electronic equipment manufacturer to ensure personnel safety and proper operation of the equipment. Delete the paragraph if not applicable to the project.

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UNI 8014-16. Maximum electrical horizontal resistance shall be [___] ohms measured between two conductors placed on top of carpet; maximum electrical vertical resistance shall be [___] ohms measured between two conductors placed at top and bottom of carpet.

[2.5.8 Delamination Strength

Delamination strength for tufted carpet with secondary backing shall be minimum of [___] N\m in accordance with ISO 11857.

]2.6 MOLDING

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NOTE: Specify aluminum, vinyl, or rubber molding as required. If Contractor's option of either aluminum, vinyl, or rubber is acceptable, modify to permit all three and specify color for all three types.

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[A hammered surface aluminum, pinless clamp-down type designed for the type of carpet being installed. Finish: [[natural] [color anodized] aluminum] [_____]. Provide floor flange at least 38 mm wide; face at least 16 mm wide.] [Heavy-duty [vinyl] [rubber] designed for the type of carpet being installed. Use floor flange at least 50 mm wide. Color: [_____].]

[2.7 ADHESIVES

Adhesive for [Broadloom shall be multi-purpose and fast tacking] [200 cm vinyl backed carpet shall be a pressure sensitive releasable] as furnished and/or recommended by the carpet manufacturer. All adhesive shall be waterproof, non-flammable, solvent free and contain no alcohol or other hazardous materials. Low emitting volatile organic compound (VOC) adhesives should be used to provide for improved indoor air quality.

]PART 3 EXECUTION

3.1 CARPET INSTALLATION

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NOTE: The section on wood doors should include requirements for undercutting bottoms of doors to allow clear door swing over carpeted areas. Coordinate this section with the section on resilient floors to ensure that straight carpet-type resilient base is used in areas to receive wall-to-wall carpet.

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Install carpet after the work of other trades, including painting, is substantially done. Installed carpet must be smooth, uniform, and secure with a minimum of seams. Run side seams toward the light where practical and where such layout does not increase the number of seams. Install breadths parallel with carpet pile in the same direction. Match patterned goods according to manufacturer's recommendations. Fit cutouts such as door jambs, columns, and ducts. Locate carpet seams at doorways parallel to and centered directly under doors. Do not seam at doorways perpendicular to door or at pivot points. Follow the wall line parallel to the carpet direction for seams at corridor changes of direction.

3.1.1 Carpet Location

Install carpet wall-to-wall in rooms and areas indicated on the finish/color schedule in the drawings. Include all material indicated, specified, or necessary for a completely finished installation by the installation method specified. Contractor is responsible for providing

carpet of the same dye lot for each type indicated, for the required quantities of carpet and must verify all dimensions in the field as well as other conditions affecting the work.

3.1.2 Substrate Preparation

Inspect rooms and areas to be carpeted. Before installation, verify that concrete floors comply with requirements on moisture content as recommended by adhesive or carpet manufacturer's instructions. Repair holes, cracks, depressions, or rough areas using material recommended by the carpet or adhesive manufacturer. Grind ridges smooth and level with surrounding surface. Provide floor free of any foreign materials and swept broom clean. Comply with requirements for conditioning adhesives and minimum floor temperature before, during, and after installation as recommended by the carpet and adhesive manufacturers' instructions. In no case install carpet when floor temperature is less than 16 degrees C, or as recommended by carpet manufacturer, for 24 hours prior to, during, and for 24 hours after installation. Do not permit traffic or movement of furniture or equipment in carpeted areas for at least 24 hours after installation. Carpet installation constitutes validation by the Contractor that the substrate and conditions in the area meet all requirements for satisfactory installation.

3.1.3 Indoor Air Quality Installation Guidelines

D.P.R. 164 and D.Lgs 494. When installing the carpet, the contractor shall always ventilate with fresh air (open doors and/or windows, use exhaust fans, etc.) during all phases of installation and for at least 72 hours thereafter. Low chemical emitting adhesive and cushions (separate and attached) shall be used. The installer should follow the printed installation instructions of carpet and adhesive manufacturers, and the requirement of D.P.R. 164 and D.Lgs 494, including the latest updated revisions. In addition, if a renovation project, contractor shall vacuum old carpet before removal to minimize the amount of dust particles. The contractor shall also vacuum the floor after the old carpet and cushion have removed.

3.2 INSTALLATION METHODS

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NOTE: Delete methods not required

1. Direct-glue down without cushion provides adequate wear plus cost economies, ease of rolling equipment, stability for standing partitions, and dimensional stability in large open area. Recommend this method of installation for high roller traffic areas and stairs.

2.

3. Installation of separate carpet and cushion without adhesives

4. Alternative - Type carpet installations systems include following:

a. Pre-applied adhesive - Adhesive applied to the back of the carpet as a part of the production process.

b. Mechanical Bonding - A mechanical interaction of hook tape on the floor and a loop scrim on the carpet's backing. The hooks become engaged, providing a bond to hold the carpet in place.

c. Dry Adhesive - A system where a dry adhesive is applied to a scrim that is then rolled onto the floor. The carpet is applied directly to the scrim.

The alternative-type installation systems are used in areas where access to the sub-floor is necessary. The carpet can be "Peeled" up for any reason without harming the sub-floor or damaging the carpet these installation systems also eliminate emissions and odors associated with the application of wet adhesives within the building.

5. Select the applicable paragraph (s) from the following paragraphs below. If more than one type of installation method is required, provide description of each installation method and the location of each in paragraphs below.

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[3.2.1 Direct Glue-Down Without Cushion

Install in accordance with the carpet manufacturer's printed instructions.

][3.2.2 Direct Glue-down With Attached Cushion

Install in accordance with the carpet manufacturer's printed instructions.

][3.2.3 Pre-Applied Adhesives

Install in accordance with the carpet manufacturer's printed instructions.

][3.2.4 Dry Adhesive

Install in accordance with the carpet manufacturer's printed instructions.

]3.2.5 Carpet Seams

Make uniform, unnoticeable, and permanent seams. Treat all joining edges, regardless of seaming method, with a seam adhesive unless manufacturer specifies otherwise. Seams must have a minimum seaming strength of 11.3 Nm and must be capable of withstanding all carpet cleaning processes.

[3.2.5.2 Taped Seams

Install in accordance with the carpet manufacturer's printed instructions.

][3.2.5.3 Hot-Melt Tape Seams

Install in accordance with the carpet manufacturer's printed instructions.

][3.2.5.4 Chemically Welded Seams

Install in accordance with the carpet manufacturer's printed instructions.

]3.2.6 Molding

Finish carpet edges meeting hard surface flooring with moldings. Install according to manufacturer's instructions.

3.3 USABLE WASTE PIECES

Leave selected pieces greater than one square meter at the site in an orderly manner, as directed by the Contracting Officer. Remove all other waste pieces.

3.4 CLEANING AND PROTECTION

3.4.1 Cleaning

After installation, remove all debris, moldings, scraps, and other foreign matter. Remove any soiled spots or adhesive from the face of the carpet with the appropriate spot remover recommended by the carpet manufacturer. Clip any protruding face yarn with sharp scissors. Vacuum the carpet until is clean.

3.4.2 Protection

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NOTE: The degree of protection of completed work required may vary, depending on the type and size of the facility, the schedule of other building trades, completion date, and move-in requirements for furniture and equipment. Modify the paragraph as required. In any case, the last sentence should remain.

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Protect installed carpet with heavy, reinforced, nonstaining kraft building paper or polyethylene film of an approved quality and thickness. Lap and secure edges of covering widths. Keep covering in repair and replace damaged portions. Remove protective covering or leave in place, as directed by the Contracting Officer.

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NOTE: Tables I and II shall be used to determine which type of carpet is appropriate for the facility

being outfitted. Table I shall first be used to determine the carpet wear classification for the facility being outfitted. Then once this has been determined, Table II shall be used to determine the carpet construction necessary to meet the wear classification defined from Table I for the pile yarn type and pile fiber chosen.

NOTE: For Table I: Classifications are based on potential number of users, type of traffic, required appearance levels, and anticipated frequency of use. Multiple classifications are assigned where significant differences among similar facilities/areas are likely. The lowest classification shown determines minimum quality permissible for a given facility/area. Use higher classifications than minimum where indicated by potential usage conditions. Classification for stair carpet for all facilities is "SEVERE."

TABLE I
CARPET WEAR CLASSIFICATION BY FACILITY TYPE

(* Where two carpet wear classifications are given, select appropriate classification based on expected traffic exposure.)

FACILITY	CARPET WEAR CLASSIFICATION		
	MODERATE	HEAVY	SEVERE
ADMINISTRATIVE FACILITIES			
Open Plan Offices			
Circulation Areas			X
Work Areas		X*	X
Closed Private Offices	X*	X	
Corridors			X
Conference Rooms	X*	X*	X
BANKS/CREDIT UNIONS			
Entrance and Customer Banking Space			X
Open Office Space and Private Offices (See Administrative Facilities)			
CHAPELS AND OTHER RELIGIOUS FACILITIES			
Worship Areas		X	

TABLE I
CARPET WEAR CLASSIFICATION BY FACILITY TYPE

(* Where two carpet wear classifications are given, select appropriate classification based on expected traffic exposure.)

FACILITY	CARPET WEAR CLASSIFICATION		
	MODERATE	HEAVY	SEVERE
Educational Wing	X*	X	
CHILD CARE CENTERS			
Child Care Rooms		X*	X
Staff Offices	X*	X	
Lounges		X*	X
CLUBS (Excluding Work Spaces & Serving Areas)		X*	X
EXCHANGE FACILITIES			
Sales Areas			X
Offices		X*	X
Dining Areas			X
MILITARY HOUSING			
FAMILY HOUSING			
FLAG	X		
SINGLE UNIT	X*	X	
MULTI-UNIT			
Sleeping/Living Rooms	X		
Corridors		X*	X
Public Areas (Lobbies, Lounges, etc.)		X*	X
QUARTERS			
BACHELOR OFFICER'S QUARTERS			
Sleeping/Living Rooms	X		
Public Areas (Lobbies, Lounges, etc.)		X*	X

TABLE I
CARPET WEAR CLASSIFICATION BY FACILITY TYPE

(* Where two carpet wear classifications are given, select appropriate classification based on expected traffic exposure.)

FACILITY	CARPET WEAR CLASSIFICATION		
	MODERATE	HEAVY	SEVERE
Dining Facilities			X
Offices	X		
BACHELOR ENLISTED QUARTERS			
Sleeping/Living Rooms		X*	X
Public Areas (Lobbies, Lounges, etc.)		X*	X
Dining Facilities			X
Offices	X*	X	
LODGING FACILITIES			
Sleeping/Living Rooms	X*	X	
Dining Facilities			X
Public Areas (Lobbies, Lounges, TV rooms, etc.)		X*	X
Offices	X*	X	
LIBRARIES		X*	X
MEDICAL FACILITIES (Excluding Patient Treatment Areas)			
Offices, Private/Semi-Private & Command	X*	X	
Playrooms, OB/Gyn-Pediatric Clinic		X*	X
Clinical Waiting Areas			X
Day Room and Lounges		X	
Dining Areas		X*	X
Chapels	X		
Libraries	X		

TABLE I
CARPET WEAR CLASSIFICATION BY FACILITY TYPE

(* Where two carpet wear classifications are given, select appropriate classification based on expected traffic exposure.)

FACILITY	CARPET WEAR CLASSIFICATION		
	MODERATE	HEAVY	SEVERE
Staff Sleeping and Watch Areas	X		
Classrooms		X	
Consultation Rooms	X		
Psychiatric Clinic (Child Play/Observation Areas only)		X*	X
MUSIC AND/OR DRAMA CENTERS		X*	X
RESEARCH FACILITIES			
Bio-Optic Laboratories		X	
THEATERS			X
TRAINING BUILDINGS/EDUCATIONAL FACILITIES (Including Dependent's Schools)			
Staff Offices	X*	X	
Classrooms		X*	X
Corridors			X
YOUTH CENTERS			X

TABLE II
RECOMMENDED BROADLOOM SPECIFICATIONS BY CARPET CONSTRUCTION

NOTE: For Table II: Some of the Commonly used pile fibers are listed in this table. Each has different performance characteristics. All are not necessarily satisfactory for all uses. Specifications for each carpet will usually specify the pile fiber that best meet requirements. Following is a brief description of the performance characteristics and recommended wear classification:

Nylon fiber is typically resistant and durable in all pile configurations using filament fiber, has good stain removal characteristics, and is recommended for the majority of commercial installations.

Polyethylene terephthalate (PET) recycled polyester fiber has permanent fade resistance, is permanently colorfast, has a permanent stain resistance which is higher than other type fibers, is impervious to harsh chemicals, and has the lowest static buildup. PET fibers have a very low moisture absorption rate. PET type polyester carpet, once crushed under continued high pressure, is less likely than nylon carpet to rebound. PET type carpet is not recommended for severe wear level areas such as corridors, elevators, or lobbies, but can perform well in light to moderate wear areas.

Wool is a natural fiber, which is inherently flame resistant, forming a char that will neither melt or drip. Wool is also and due to the scaly character of its fiber it scatters optical light, thus reducing soiling visibility. Wool is recommended for the majority of commercial installations and highly recommended for shipboard use due to it being inherently flame resistant. Carpet made of wool is usually more expensive.

Choice of pile fiber will be governed by the prospective use of the carpet and should be determined by careful evaluation of texture retention, soil hiding, cleanability, resistance, desired appearance, cost and other factors applicable to the project.

WEAR LEVEL - MODERATE

PILE YARN TYPE	PILE FIBER	WEIGHT (kg/m2)/(oz/sqyd)	PILE DENSITY (kg/m3)/(oz/cuyd)
CUT PILE	PET	1.12/30	198/5000
	*S NYLON	0.89/24	147/3600
	*CF NYLON	0.89/24	131/3200
	WOOL	1.56/42	98/2400
LOOP PILE	S Nylon	NR	NR
	CF NYLON	0.74/20	131/3200
	WOOL	1.30/35	141/3450
CUT AND LOOP	S NYLON	NR	NR
	CF NYLON	0.89/24	131/3200
	WOOL	1.41/38	131/3200
TIP-SHEAR	S NYLON	NR	NR
	CF NYLON	0.89/26	131/3200
	WOOL	1.41/38	131/3200
FRIEZE	S NYLON	0.97/26	131/3200
	CF NYLON	0.89/24	131/3200
	WOOL	1.41/38	131/3200
WOVEN	S NYLON	NR	NR
	CF NYLON	0.82/22	135/3300
	WOOL	1.04/28	164/4000

WEAR LEVEL - HEAVY

PILE YARN TYPE	PILE FIBER	WEIGHT (kg/m2)/(oz/sqyd)	PILE DENSITY (kg/m3)/(oz/cuyd)
CUT PILE	PET	1.67/45	266/6480
	*S NYLON	1.19/32	148/3600
	*CF NYLON	1.19/32	148/3600
	Wool	1.71/46	185/4500
LOOP PILE	S Nylon	NR	NR
	CF NYLON	0.97/26	164/4000
	Wool	1.49/40	185/4500
CUT AND LOOP	S NYLON	NR	NR
	CF NYLON	1.04/28	164/4000
	WOOL	1.67/45	205/5000
TIP-SHEAR	S NYLON	NR	NR
	CF NYLON	1.04/28	164/4000
	WOOL	1.64/45	205/5000
FRIEZE	S NYLON	1.19/32	148/3600
	CF NYLON	1.19/32	148/3600

WEAR LEVEL - HEAVY

PILE YARN TYPE	PILE FIBER	WEIGHT (kg/m2)/(oz/sqyd)	PILE DENSITY (kg/m3)/(oz/cuyd)
	WOOL	1.86/50	185/4500
WOVEN	S NYLON	NR	NR
	CF NYLON	0.97/26	226/5500
	WOOL	1.04/28	164/4000

WEAR LEVEL - SEVERE

PILE YARN TYPE	PILE FIBER	WEIGHT (kg/m2)/(oz/sqyd)	PILE DENSITY (kg/m3)/(oz/cuyd)
CUT PILE	*S NYLON	1.26/34	172/4200
	*CF NYLON	1.26/34	172/4200
	WOOL	1.86/50	197/4800
LOOP PILE	S NYLON	NR	NR
	CF NYLON	0.97/26	226/5500
	WOOL	NR	NR
CUT AND LOOP	S NYLON	NR	NR
	CF NYLON	1.12/30	205/5000
	WOOL	NR	NR
TIP-SHEAR	S NYLON	NR	NR
	CF NYLON	1.12/30	205/5000
	WOOL	NR	NR
FRIEZE	S NYLON	1.26/34	172/4200
	CF NYLON	1.26/34	172/4200
	WOOL	1.86/50	197/4800
WOVEN	S NYLON	NR	NR
	CF NYLON	1.04/28	226/5500
	WOOL	1.49/40	205/5000

NOTE: The requirements indicated above are considered the acceptable minimal requirements for each carpet construction type indicated. Though each of the different broadloom types will differ in recommended usage, the specifications will ensure receipt of a high performance broadloom carpet.

NR - Not Recommended for use in this type wear classification

*** - S NYLON indicates staple nylon and CF NYLON indicates continuous filament nylon**

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-- End of Section --